

## WHAT IS CLAIMED IS:

## 1. An air purifier comprising:

5 a ventilation hood with a ventilation hood plenum disposed therein;

a ventilation duct connected to said ventilation hood;

10 a fan for drawing contaminated air through said ventilation hood into said ventilation hood plenum;

15 an ultra violet radiation generating apparatus which generates ultra violet radiation that is incident on a contaminated air stream traversing through said ventilation hood plenum, said ultra-violet radiation generating apparatus generating ozone for oxidizing a plurality of contaminants in said contaminated air stream;

20 a first member being disposed at an inlet of said ventilation hood, wherein said first member blocks said ultra violet radiation from exposing an individual in proximity to the air purifier; and

25 a first switch being disposed between said first member and the air purifier, said first switch modulating said ultra violet radiation generating apparatus between at least a first condition and a second condition upon removal of said first member.

30 2. The air purifier of claim 1, further comprising a second switch, said second switch being disposed between a second member and the air purifier, wherein said first switch and/or said second switch modulates said a ultra violet radiation generating apparatus between said first condition and said second condition upon an occurrence being selected from the group consisting of: a

removal of said first member, a removal of said second member, a removal of both said first member and said second member, a failure of an exhaust fan, and any combinations thereof.

5           3.       The air purifier of claim 1, wherein said first member is a filter.

          4.       The air purifier of claim 1, wherein said first condition is an illuminated state of said ultra violet radiation generating apparatus and said second condition is a non-illuminated state of said ultra-violet generating  
10   apparatus.

          5.       The air purifier of claim 2, wherein said second condition is selected from the group consisting of: reducing electrical power to said ultra violet radiation generating apparatus, rotating said ultra violet radiation generating  
15   apparatus away from a user, rotating a cassette having said ultra violet radiation generating apparatus away from said user, manipulating a shielding member between said ultra violet radiation generating apparatus and said user, and any combinations thereof.

20           6.       The air purifier of claim 1, wherein said first switch is hermetically sealed.

          7.       The air purifier of claim 1, wherein said first member has a first side and a second side, said first switch being disposed at said second side between  
25   said ventilation hood and said first member.

          8.       The air purifier of claim 1, wherein said first switch is in electrical communication with a controller, said controller modulating said ultra-violet radiation generating apparatus from said first condition to said second condition.  
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          9.       The air purifier of claim 1, wherein said first switch modulating said

ultra violet radiation generating apparatus between at least a first condition and a second condition is disposed in a retrofit apparatus for an existing ventilation systems.

5           10.     The air purifier of claim 1, wherein said first switch is selected from the group consisting of: a pressure switch, a spring-biased switch, a push button switch, an optical switch, a proximity switch, a magnetic switch, a key switch, a snap action switch, a temperature switch, a rocker switch, and any combinations thereof.

10           11.     The air purifier of claim 2, wherein said second switch is selected from the group consisting of: a pressure switch, a spring-biased switch, a push button switch, an optical switch, a proximity switch, a magnetic switch, a key switch, a snap action switch, a temperature switch, a rocker switch, and any  
15 combinations thereof.

          12.     The air purifier of claim 8, wherein said controller is a digital signal processor having program instructions, said program instructions and said controller operable to modulate said ultra-violet radiation generating apparatus.

20           13.     The air purifier of claim 1, wherein said first switch is resistant to heat being generated from a cooking appliance.

          14.     The air purifier of claim 1, further comprising a sensor, said sensor  
25 monitoring an operability condition of the air purifier, said sensor outputting a signal in response to a condition of the air purifier to a controller, said controller modulating said ultra-violet radiation generating apparatus from said first condition to said second condition.

30           15.     The air purifier of claim 1, further comprising a second switch being disposed between a second member and the air purifier, said second switch

being in electrical communication with said first switch, said ultra violet radiation generating apparatus, and a power supply, and wherein said first switch is in electrical communication with said second switch, said ultra violet radiation generating apparatus, and said power supply, wherein upon an occurrence that  
5 said first switch is toggled, said ultra violet radiation generating apparatus is rendered non-illuminated.

16. The air purifier of claim 15, wherein upon an occurrence that said second switch is toggled, said ultra violet radiation generating apparatus is  
10 rendered non-illuminated.

17. The air purifier of claim 1, wherein said first member is selected from the group consisting of: a grease filter, a filter, a HEPA filter, a coalescer, a first longitudinal member, a baffle, a baffling arrangement and any combinations  
15 thereof.

18. An air purifier comprising:

a ventilation hood having a ventilation hood inlet, a ventilation outlet, and a  
20 ventilation hood plenum disposed therein;

a ventilation duct having a ventilation duct inlet being connected to said ventilation hood outlet and a ventilation duct outlet;

25 a fan for drawing contaminated air through said ventilation hood inlet into said plenum;

an ultra violet radiation generating apparatus having an illuminated state and a non-illuminated state which generates ultra violet radiation that is incident  
30 on said contaminated air stream, said ultra violet radiation generating apparatus generating ozone in said contaminated air stream for oxidizing contaminants in

said contaminated air stream;

a plurality of grease filters being disposed at said ventilation hood inlet in a plurality of slots, said plurality of grease filters blocking said ultra violet radiation;

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a first switch being disposed between a first one of said plurality of grease filters and said ventilation hood, said first switch being in electrical communication with a power source;

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a second switch being disposed between a second one of said plurality of grease filters and said ventilation hood, said second switch being in electrical communication with said power source and said first switch;

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said first switch, said second switch and said power source being in electrical communication with said ultra violet radiation generating apparatus, wherein upon an occurrence that any of said plurality of grease filters is removed, said first switch and/or said second switch interrupts power from said power source to said ultra violet radiation generating apparatus to protect a user from exposure from said ultra-violet radiation being emitted or being reflected from said ultra violet radiation generating apparatus.

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19. The air purifier of claim 18, further comprising a baffle arrangement, wherein said baffle arrangement blocks said ultra violet radiation, and wherein said baffle arrangement is disposed at said ventilation hood inlet, said baffle arrangement taking a contaminated air stream around a path, said path being substantially U-shaped for removing an amount of contaminants from said contaminated air stream.

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